

## **Greedy methods for kernel-based generalized interpolation and their application to computerized tomography**

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Positive definite kernel functions are powerful tools for numerous mathematical problems. While most kernel-based methods use kernel functions in the context of standard Lagrangian interpolation, kernel functions are also well-suited for generalized interpolation problems due to the structure of their native space. Similar to the standard case, the generalized interpolation problem is often ill-conditioned, e.g. for large data sets. Therefore, we will discuss generalizations of well-known greedy data selection algorithms from standard Lagrangian interpolation.

Moreover, we will discuss the application of kernel-based generalized interpolation to computerized tomography, as it was proposed by S. De Marchi, A. Iske and G. Santin in 2018. The proposed reconstruction method and the effects of the different greedy algorithms will be illustrated by numerical examples.